

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
27 December 2001 (27.12.2001)

PCT

(10) International Publication Number
WO 01/099137 A3

(51) International Patent Classification⁷: **H01L 29/82**

(21) International Application Number: **PCT/CA01/00944**

(22) International Filing Date: 19 June 2001 (19.06.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

| | | |
|------------|-----------------------------|----|
| 60/212,646 | 19 June 2000 (19.06.2000) | US |
| 60/218,131 | 14 July 2000 (14.07.2000) | US |
| 09/679,603 | 5 October 2000 (05.10.2000) | US |

(63) Related by continuation (CON) or continuation-in-part (CIP) to earlier application:

| | |
|----------|-----------------------------|
| US | 09/679,603 (CON) |
| Filed on | 5 October 2000 (05.10.2000) |

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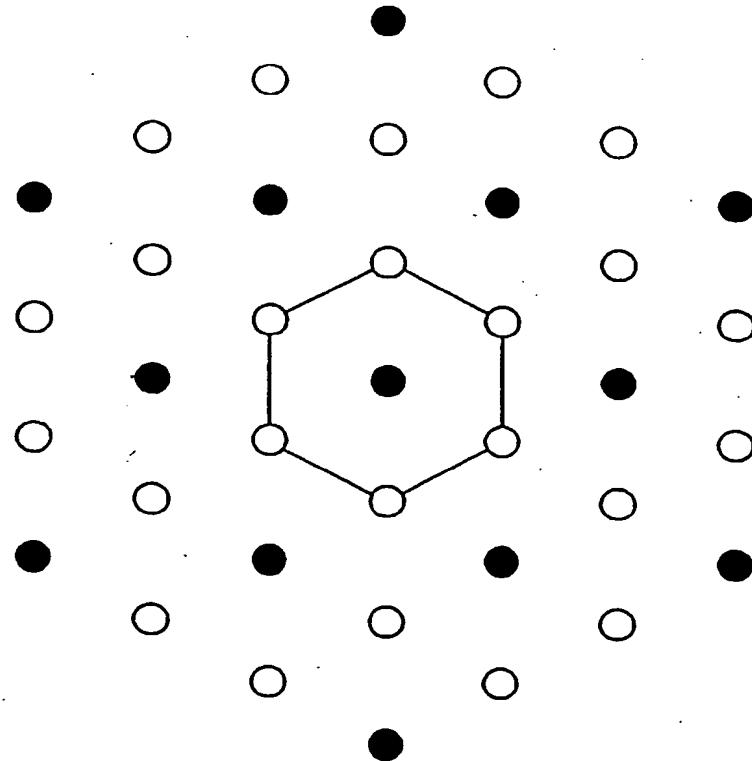
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(81) Designated States (national): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, ES, FI (utility model), FI, GB, GD, GE,

[Continued on next page]

(54) Title: SPINTRONIC DEVICES AND METHOD FOR INJECTING SPIN-POLARIZED ELECTRICAL CURRENTS INTO SEMI-CONDUCTORS



(57) Abstract: Atomically ordered interfaces between semiconductor and ferromagnetic materials provide spin filters. The spin filters may be used to inject strongly spin polarized currents into a semiconductor for use in spintronic devices. Some suitable combinations of ferromagnetic metal and semiconductor include hcp Co or fcc Ni or fcc Co (ferromagnetic metals) interfaced to GaSb, InAs, ZnTe, CdSe or GaAs or InP or Ge or BN or semiconductor alloys that include any of these (semiconductors).

WO 01/099137 A3



GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK (utility model), SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) **Designated States (regional):** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:

12 December 2002

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/CA 01/00944

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01L29/82

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X | <p>FIEDERLING R ET AL: "INJECTION AND DETECTION OF A SPIN-POLARIZED CURRENT IN A LIGHT-EMITTING DIODE" NATURE, MACMILLAN JOURNALS LTD. LONDON, GB, vol. 402, no. 6763, 16 December 1999 (1999-12-16), pages 787-790, XP000960957 ISSN: 0028-0836 cited in the application figures 1,2 page 787, column 2, paragraph 2 -page 789, column 1, paragraph 4</p> <p style="text-align: center;">-/-</p> | 2,3,8,47 |

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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- "A" document defining the general state of the art which is not considered to be of particular relevance
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- "P" document published prior to the international filing date but later than the priority date claimed

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Date of the actual completion of the international search

16 October 2002

Date of mailing of the international search report

22/10/2002

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INTERNATIONAL SEARCH REPORT

In International Application No
F., CA 01/00944

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|----------|---|-----------------------|
| X | BRUNO P ET AL: "RESONANT TUNNELING SPIN VALVE: A NOVEL MAGNETOELECTRONICS DEVICE" JOURNAL OF APPLIED PHYSICS, AMERICAN INSTITUTE OF PHYSICS, NEW YORK, US, vol. 84, no. 2, 15 July 1998 (1998-07-15), pages 978-982, XP000769761 ISSN: 0021-8979 Section II: Discussion of the structure | 2, 3, 41, 42, 47 |